

01-11-06

1634  
zfw



Express Mail No.: EV 666038952 US

-----  
IN THE UNITED STATES PATENT AND  
TRADEMARK OFFICE  
-----

Application Number: 09/582,809  
Filed: June 30, 2000

Applicants: George E. Seidel, Lisa Herickhoff, John Schenk  
Title: Sex Specific Insemination of Mammals With Low Number of  
Sperm Cells

TC/A.U.: 1634  
Examiner: Carla J. Myers

Assignee: XY, Inc. and Colorado State University Research Foundation  
Attorney Docket: XY-Lodo-USNP  
Customer No.: 33549

---

**LETTER OF TRANSMITTAL**

Mail Stop Amendment  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Dear Sir:

Enclosed with this correspondence are the following documents:

1. Information Disclosure Statement pursuant to 37 CFR §1.97(b)(3) and a copy of each Foreign and Other reference cited;
2. This Letter of Transmittal; and
3. A Certificate of Express Mailing for each document and a return receipt post card.


Please confirm receipt of the documents by applying your date stamp on the enclosed postcard and returning it to me.

I have this 9 day of January, 2006, either myself personally or through my direction of staff at this office, deposited all of the items in the above letter of transmittal with the United States Postal Service as Express Mail, postage prepaid, in an envelope addressed to: Mail Stop Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria VA 22313-1450.

Dated this 9 day of January, 2006.

Respectfully Submitted,  
SANTANGELO LAW OFFICES, P.C.

By:

  
\_\_\_\_\_  
Misha Gregory Macaw  
Attorney for Assignee  
USPTO Reg. No. 55,417  
125 South Howes, Third Floor  
Fort Collins, Colorado 80521  
(970) 224-3100

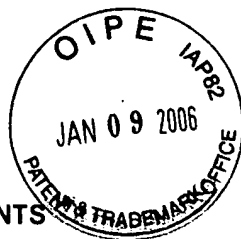


Express Mail No. EV 666038952 US

<b>IN THE UNITED STATES</b> <b>PATENT AND TRADEMARK OFFICE</b>  <b>INFORMATION DISCLOSURE</b> <b>STATEMENT BY APPLICANT</b>	<b>APPLICATION NO:</b>	09/582,809
	<b>FILING DATE:</b>	6/30/2000
	<b>FIRST NAMED</b>	George E. Seidel
	<b>ART UNIT:</b>	1634
	<b>EXAMINER NAME:</b>	Carla J. Meyers
	<b>DOCKET NO:</b>	XY-Lodo-USNP

**I. US PATENT DOCUMENTS**

EXAMINER INITIAL	DOCUMENT NO. & KIND CODE (if known)	PATENTEE OR APPLICANT	PUBLICATION/ISSUE DATE mm/dd/yyyy	Pages, Columns, Lines Where Relevant Passages Or Relevant Drawings Appear
	4,559,309	Evenson	12/17/1985	
	4,764,013	Johnston	08/00/1988	
	5,084,004	Ranoux	01/00/1992	
	5,219,729	Hodgen	06/00/1993	
	5,532,155	Ranoux	07/00/1996	
	5,693,534	Alak et al.	12/00/1997	
	5,873,254	Arav	02/00/1999	
	5,891,734	Gill et al.	04/00/1999	
	5,919,621	Brown	7/6/1999	
	5,985,538	Stachecju	11/00/1999	
	6,050,935	Ranoux et al.	04/00/2000	
	6,140,121	Ellington et al.	10/00/2000	
	2005/0003472 A1	Muhammad, A.	1/6/2005	
	2005/0112541 A1	Durack, G.	5/26/2005	
	2005/0214733 A1	Graham, J.A.	9/29/2005	



## II. FOREIGN PATENT DOCUMENTS

EXAMINER INITIAL	Foreign Patent Document Country Code, Number, Kind Code (if known)	PATENTEE OR APPLICANT NAME	PUB'N DATE mm- dd-yyyy	TRANSLATION	
				Yes	No
	WO 04/017041 A3 Search Report	XY INC.	2/26/2004		
	WO 04/012837 A3 Search Report	XY, Inc.	2/12/2004		
	WO 04/009237 A3	XY, Inc.	1/29/2004		
	EP 606847 A2	National Institute of Animal Husbandry (JP)	7/20/1994		
	WO 2005/095960 A1	Ludwig, C.	10/13/2005		
	WO 2005/095590 A2	Ludwig, C	10/13/2005		
	WO 2005/094852 A2	Graham, J.	10/13/2005		
	WO 02/41906 A2	Pharmacia Corporation	05/30/2002		
	WO 2004/059282 A2	Nagappan, M.	7/15/2004		
	WO 2004/003697 A2	Monsanto Technology LLC	10/8/2004		
	WO 2004/104178 A3	XY, Inc.	12/2/2004		



# OTHER REFERENCES

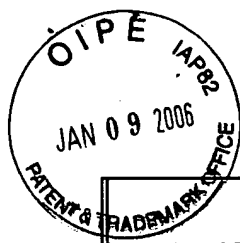
EXAMINER INITIAL	Document
	US Patent Application No. 09/015,454, Office Action dated 09/14/1998 (SuperO-Orig US nonprovisional)
	US Patent Application No. 09/015,454, Office Action dated 05/24/1999 (SuperO-Orig US nonprovisional)
	US Patent Application No. 09/015,454, Notice of Allowability with Examiner's Amendment, dated 12/27/1999 ) (SuperO-Orig)
	US Patent Application No. 09/448,643, Office Action dated 03/21/2001 (SuperO-Cont1)
	US Patent Application No. 09/448,643, Office Action dated 06/01/2000 (SuperO-Cont1)
	US Patent Application No. 09/448,643, Notice of Allowability with Examiner's Amendment dated 10/09/2001 (SuperO-Cont1)
	US Patent Application No. 10/081,955, Office Action dated 09/30/2004 (SuperO-Cont2)
	US Patent Application No. 10/081,955, Office Action dated 06/13/2005 (SuperO-Cont2)
	US Patent Application No. 09/001,394, Office Action dated 02/19/1999 (Lodo Orig US nonprovisional)
	US Patent Application No. 09/001,394, Notice of Allowability with Examiner's Amendment dated 10/27/1999 (Lodo Orig US Nonprovisional)
	US Patent Application No. 09/551,959, Office Action dated 01/23/2002 (Lodo US Nonprovisional Div1)
	US Patent Application No. 09/551,959 Notice of Allowability with Examiner's Amendment, dated 10/15/2002 (Lodo US Nonprovisional Div1)
	US Patent Application No. 10/378,109, Office Action dated 06/10/2005 (Lodo US Nonprovisional Div2)
	US Patent Application No. 10/378,109, Office Action dated 11/21/2005 (Lodo US Nonprovisional Div2)
	Australian application Number 20239/99; Examiner's Report dated 10/03/2001 (Parent)
	Australian application Number 20239/99; Examiner's Report dated 11/14/2001 (Parent)
	Australian application Number 20239/99; Examiner's Report dated 04/02/2003 (Parent)
	Australian application Number 20239/99; Examiner's Report dated 05/13/2003 (Parent)
	Australian application Number 20239/99; Letters Patent dated 03/18/2004
	Australian application Number 2003213537; Examiner's Report dated 05/23/2005 (Div1)
	Canadian Application Number 2,316,080; Examiner's Report dated 07/14/2003
	Canadian Application Number 2,316,080; Examiner's Report dated 03/31/2005
	Chinese Application Number 98813255.9; Office Action dated 10/10/2003
	European Regional Application Number 98 965 046.0; dated 02/23/2004
	European Regional Application Number 98 965 046.0; dated 11/15/2004
	European Regional Application Number 98 965 046.0; dated 06/27/2005
	Great Britain application Number GB-0016132.3; Examination Report dated 04/09/2002 (Parent)



	Great Britain application Number GB-0016132.3; Examination Report dated 11/01/2002 (Parent)
	Great Britain application Number GB-0016132.3; Examination Report dated 02/10/2003 (Parent)
	Great Britain application Number GB-0016132.3; Examination Report dated 03/25/2003 (Parent)
	Great Britain application Number GB-0016132.3; Examination Report dated 04/09/2003 (Parent)
	Great Britain application Number GB-0016132.3; Certificate of Grant of Patent Number GB 2350619 dated 06/04/2003 (Parent)
	Great Britain application Number GB-0300479.3; Combined Search and Examination Report dated 02/13/2003 (Div1)
	Great Britain application Number GB-0300479.3; Examination Report dated 03/28/2003 (Div1)
	Great Britain application Number GB-0300479.3; Examination Report dated 04/10/2003 (Div1)
	Great Britain application Number GB-0300479.3; Certificate of Grant of Patent Number GB2381005 dated 06/04/2004 (Div1)
	Great Britain application Number GB-0300478.5; Combined Search and Examination Report dated 02/13/2003 (Div2)
	Great Britain application Number GB-0300478.5; Examination Report dated 03/26/2003 (Div2)
	Great Britain application Number GB-0300478.5; Certificate of Grant of Patent Number GB2381004 dated 06/04/2004 (Div2)
	Great Britain application Number GB-0300480.1; Combined Search and Examination Report dated 02/13/2003 (Div3)
	Great Britain application Number GB-0300480.1; Examination Report dated 04/02/2003 (Div3)
	Great Britain application Number GB-0300480.1; Examination Report dated 04/17/2003 (Div3)
	Great Britain application Number GB-0300480.1; Certificate of Grant of Patent Number GB2381006 (Div3)
	German Application Number 198 82 943.4-41; Office Action dated 04/26/2002
	Japanese Application Number 2000-526614; Notice of Reasons for Rejection dated 05/27/2004
	New Zealand Application Number 505330; Examination Report dated 05/16/2001 (Parent)
	New Zealand Application Number 505330; Examination Report dated 11/25/2002 (Parent)
	New Zealand Application Number 505330; Grant of Patent dated 06/09/2003 (Parent)
	New Zealand Application Number 522607; Examination Report dated 11/21/2002 (Div1)
	New Zealand Application Number 522607; Examination Report dated 03/08/2004 (Div1)
	New Zealand Application Number 522607; Examination Report dated 05/19/2004 (Div1)
	New Zealand Application Number 522607; Grant of Patent dated 12/09/2004 (Div1)
	New Zealand Application Number 532939; Examination Report dated 05/19/2004 (Div2)
	Russian Application Number 2000120216/13; Official Action dated 01/28/2003
	Russian Application Number 2000120216/13; Official Action dated 10/27/2003
	Russian Application Number 2000120216/13; Official Action dated 05/25/2005



	Amann, Rupert P. "Cryopreservation of Sperm" 1999, Encyclopedia of Reproduction 1:733-783
	Berger, G. S. "Intravaginal Insemination", Fertil. Steril. 48:328-330, (1987)
	Buchanan, B. R., et al, "Insemination of Mares with Low Numbers of Either Unsexed or Sexed Spermatozoa", Therio. Vol. 53, p. 1333-1344. 2000
	Menke, E. A Volume Activated Cell Sorter Journal of Histochemistry and Cytochemistry, 1977, vol. 25, No. 7, pp 796-803
	Metezeau P. et al. Improvement of Flow Cytometry Analysis and Sorting of Bull Spermatozoa by Optical Monitoring of Cell Orientation as Evaluated by DAN Specific Probing" Molecular Reproduction and Development, 1991, vol. 30 pp 250-257
	Picket B.W., et al., "Livestock Production Science," 1998
	Squires, E.L., "Procedures for Handling Frozen Equine Semen for Maximum Reproductive Efficiency", pp. 1, 39-41, 81-89
	Stovel R.T. A Means for Orienting Flat Cells in flow systems Biophysical Journal, 1978, vol. 23, pp 1-5
	Hollinshead, F.K. et al. "In vitro and in vivo assessment of functional capacity of flow cytometrically sorted ram spermatozoa after freezing and thawing." Reprod. Fertil. And Develop. 2003. Vol 15, pp 351-359
	Hollinshead F. K. et al. "Production of lambs of predetermined sex after the insemination of ewes with low numbers of frozen-thawed sorted X- or Y- Chromosome-bearing spermatozoa", Reprod. Fertil. And Develop. 2002, vol. 14, pp 503-508
	Hollinshead F. K. et al. "Sex-Sorting and Re-cryopreservation of Frozen-Thawed Ram Sperm for In Vitro Embryo Production" Theriogenology, Vol. 59. (2003) pp. 209
	Dhali et al. Vitricification of Buffalo (Bubalus Bubalis) Oocytes, Embryo Theriogenology Vol 53, pp 1295-1303 (2000)
	Borini et al. Cryopreservation of Mature Oocytes: The use of a trypsin inhibitor enhances fertilization and obtained embryos rates, Fertil. Steril. (1997), Vol 68 (Suppl.)
	Hamamatsu Photonics K.K. Electronic Tube Center, Photomultiplier Tubes, Brochure Dec. 1997
	Johnson, L. A., et al. The Beltsville Sperm Sexing Technology: High-speed sperm sorting gives improved sperm output for In Vitro fertilization and AI, Journal of Animal Science, Vol. 77, Suppl 2/J, Dairy Sci. Vol. 82, Suppl. 2/1999 pp 213-220
	Peters D., The LLNL high-speed sorter: Design features, operational characteristics, and biological utility, Cytometry, 6:290-301 (1985)
	Rens W., et al Slit-scan flow cytometry for consistent high resolution DNA analysis of X- and Y- chromosome bearing sperm, Cytometry 25:191-199 (1996)
	van Munster, E. B. Interferometry in flow to sort unstained X- and Y-Chromosome-Bearing Bull Spermatozoa, Cytometry 47:192-199 (2002)
	Schmid, R. L., et al. Effects of follicular fluid or progesterone on <i>in vitro</i> maturation of equine oocytes before intracytoplasmic sperm injection with non-sorted and sex-sorted spermatozoa, Journal of Reproduction and Fertility 56:519-525, 2000
	Brink, Z et al. A reliable procedure for superovulating cattle to obtain zygotes and early embryos for microinjection, Theriogenology Vol. 41, p 168, (1994)
	Spectra-Physics, The Solid State Laser Company, "Vanguard 350-HMD 355, User's Manual, December 2002
	Photon, Inc. Light Measuring Solutions, NanoScan for High-powered beam Applications, 2005
	Fluorescence Lifetime Systems, www.picoquant.com, 1/28/2005 pp 2
	NCI ETI Branch, Flow Cytometry Core Laboratory, <a href="http://home.ncifcrf.gov/ccr/flowcore/ndyag.htm">http://home.ncifcrf.gov/ccr/flowcore/ndyag.htm</a> , pp 5, 5/11/2004



	NCI ETI Branch, Flow CytometryCore Laboratory, <a href="http://home.ncifcrf.gov/ccr/flowcore/lrll.htm">http://home.ncifcrf.gov/ccr/flowcore/lrll.htm</a> , pp 14, 5/11/2004
	Saacke,R.G., Can Spermatozoa with abnormal heads gain access to the ovum in artificially inseminated super- and single-ovulating cattle?, Theriogenology 50:117-128. 1998.
	Hawk, H.W., Gamete Transport in the Superovulated Cow. Theriogenology: January 1998 Vol. 29 No.1 pp.125-142
	Blecher, S.R., et al. A new approach to immunological sexing of sperm, Theriogenology, 59, pp. 1309-1321, 1999 Vol.
	Wheeler, M. B., et al. Application of sexed semen technology to in vitro embryo production in cattle, Theriogenology, Vol 65 (2006) 219-227
	Garverick, H. A., et al. mRNA and protein expression of P450 aromatase (AROM) and estrigen receptors (ER) $\alpha$ and $\beta$ during early development of bovine fetal ovaries; The society for the study of reproduction 38th annual meeting July 24-27, 2005; Abstract only
	Bodmer, M., et al., Fertility in heifers and cows after low does insemination with sex-sorted and non-sorted sperm under field conditions; Theriogenology, Vol 64, (2005) 1647-1655
	Schenk J. L., et al. Embryo production from superovulated cattle following insemination of sexed sperm, Theriogenology, 65 (2006) 299-307
	Garner, D. L., Flow cytometric sexing of mammalian sperm, Theriogenology, (2006) pp 15
	Habermann F. A., et al., Validation of sperm sexing in the cattle (Bos taurus) by dual colour flourescence in situ hybridization; J Anim Breed Genet. 2005 Apr; 122 Suppl 1:22-7 (Abstract only)
EXAMINER:	DATE CONSIDERED
EXAMINER: Please initial if citation considered, whether or not citation is in conformance with MPEP § 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to the applicant.	





Express Mail No.: EV 666038952 US

-----  
IN THE UNITED STATES PATENT AND  
TRADEMARK OFFICE  
-----

Application Number: 09/582,809  
Filed: June 30, 2000

Applicants: George E. Seidel, Lisa Herickhoff, John Schenk  
Title: Sex Specific Insemination of Mammals With Low Number of  
Sperm Cells

TC/A.U.: 1634  
Examiner: Carla J. Myers

Assignee: XY, Inc. and Colorado State University Research Foundation  
Attorney Docket: XY-Lodo-USNP  
Customer No.: 33549

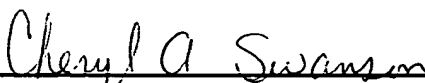
---

**CERTIFICATE OF EXPRESS MAILING**

I, Cheryl A. Swanson, hereby certify to the truth of the following items:

1. I am an employee of Santangelo Law Offices, P.C., 125 South Howes, Third Floor, Fort Collins, Colorado 80521.
2. I have this day deposited the attached Information Disclosure Statement Pursuant to 37 CFR §1.97(b)(3) and a copy of each Foreign and Other reference cited; Letter of Transmittal; and return post card with the United States Postal Service as Express Mail, postage prepaid, for mailing to: Mail Stop Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria VA 22313-1450.

Dated this 9<sup>th</sup> day of January, 2006.

  
\_\_\_\_\_  
Cheryl A. Swanson